Kindly replace the paragraph beginning at page 7, line 25, with the following:

--The difference between the interference canceller unit shown in fig. 4 and the interference canceller unit shown in Fig. 2 is that the new replica signal $d_{s+1}{}^{k}$ is resubtracted from the results of the above-mentioned addition of the residual signal $r_{s+1}{}^{k}$ and the replica signal $d_s{}^{k}$ to produce a residual signal $r_{s+1}{}^{k+1}$, and sent to the interference cancellation unit ICU_{K+1} corresponding to the next user.--

A2

Kindly replace the paragraph beginning at page 15, line 9, with the following:

--The present invention also proposes a first interference canceller unit which is an interference canceller unit in a subtractive interference canceller for digital radio communications wherein the communication channel is composed of pilot bits, other control bits and data bits; characterized by comprising

adding means (901) for receiving and adding an interference cancellation residual signal and a replica signal from a previous stage;

despreading means (905) for despreading the aforementioned addition signal by multiplying a spreading code of the user;

A3 Cont

correcting means (903, 906) for determining a fading vector and performing transmission path correction;

tentative decision means (707) for deciding on a symbol from the transmission path corrected signal;

weighting means (908) for multiplying a weighting coefficient to the tentative decision symbol;

A3 Concl

spreading means (909) for respreading the tentative decision symbol by multiplying the spreading code of the user; and

decorrecting means (911) for determining a replica signal by multiplying the transmission path properties to the respread signal; and

in that said weighting means outputs a weighting coefficient $\lambda_A{}^Q$ of the pilots bits, a weighting coefficient $\lambda_B{}^Q$ of the other control bits and a weighting coefficient λ^I of the data bits as separately derived values.--

Kindly replace the paragraph bridging pages 16 and 17 with the following:

A4 Cont.

--The present invention also proposes a fourth interference canceller unit which is an interference canceller unit in a subtractive interference canceller for digital radio communications; characterized by comprising

adding means (901) for receiving and adding an interference cancellation residual signal and a replica signal from a previous stage;

despreading means (905) for despreading the aforementioned addition signal by multiplying a spreading code of the user;

correcting means (903, 906) for determining a fading vector and performing transmission path correction;

tentative decision means (707) for deciding on a symbol from the transmission path corrected signal;

weighting means (908) for multiplying a weighting coefficient to the tentative decision symbol;

A4 Concl.

spreading means (909) for respreading the tentative decision symbol by multiplying the spreading code of the user; and

decorrecting means (911) for determining a replica signal by multiplying the transmission path properties to the respread signal; and

in that said weighting means determines a complex weighting coefficient such as to minimize the power of the interference cancellation residual signal for each channel in each stage.--

Kindly replace the paragraph beginning at page 23, line 9, with the following:

A5

--Herebelow, a W-CDMA uplink shall be taken as an example for describing the operating principles of the weighting coefficient determining method based on the second aspect of the present invention. The communication data structure and modulation explained below is based on the 3GPP standard (see 3GPP, "Physical Channels and Mapping of Transport Channel onto Physical Channels (FDD)", *TS 25.211 v2.1.0,* 1999-6).--

Kindly replace the paragraph beginning at page 23, line 15, with the following:

A6 Cont

--First, the received signal r(t) can, in general, be expressed as follows:

[Eq. 21]

$$r(t) = \sum_{i=1}^{N} \sum_{k=1}^{K} \sum_{l=1}^{L} h_{k,l}(t) c_k(t-\tau_{k,l}) b_{k,l,i}(t) + n(t)$$

$$b_{k,l,i}(t) = \begin{cases} a_{k,i} & iT_b \le t - \tau_{k,l} < (i+1)T_b \\ 0 & others \end{cases}$$

A4 Cont.

Here, N denotes the number of symbols, K denotes the number of users, L denotes the total number of paths, $h_{k,l}(t)$ denotes the l-th channel coefficient of the k-th user, $c_k(t)$ denotes the spreading code, $b_{k,l,i}(t)$ denotes a rectangular pulse indicating the symbol duration relating to the i-th symbol $a_{k,i}$ of the k-th user, T_b denotes the duration of one symbol, $\tau_{k,l}$ denotes the l-th channel delay of the k-th user and n(t) is Gaussian white noise which is to be added. In the present specification, the parallel IC (PIC) or serial IC (SIC) is assumed to be provided at the base station (BS).--

Kindly replace the paragraph bridging pages 25 and 26 with the following:

--Therefore, the weighting coefficient which minimizes the expected value $I_{k,l}^S$ of the evaluation function can be expressed as follows.

[Eq. 29]

$$\lambda_{k,l}^s = \frac{\int dh_{k,l} \int dH_{k,l}^s \int db_k \int dB_k^s h_{k,l} H_{k,l}^{s}{}^* b_k B_k^{s}{}^* f(h_{k,l}, H_{k,l}^s, b_k, B_k^s)}{\int dh_{k,l} \int dH_{k,l}^s \int db_k \int dB_k^s \left| H_{k,l}^s B_k^s \right|^2 f(h_{k,l}, H_{k,l}^s, b_k, B_k^s)}$$

A7 Cont.

In particular, given the estimated channel $H_{k,l}^S$ and the tentative decision B_k^S, Equation 29 can be modified to the following equation.

$$\lambda_{k,l}^s(H_{k,l}^s, B_k^s) = \frac{\int dh_{k,l} \int db_k h_{k,l} b_k f(h_{k,l}, H_{k,l}^s, b_k, B_k^s)}{H_{k,l}^s B_k^s}$$

[Eq. 30]

(Approximation of Least Square Error Weighting Coefficient)--

Kindly replace the paragraph beginning at page 34, line 6, with the following:

--On the other hand, at the weighting coefficient calculating module 902, the SIR of the I channel and the Q channel are respectively determined by the SIR measuring portion 913. The SIR measuring portion 913 is the same as the SIR measuring portion 631 shown in Fig. 7, and determines the SIR of each channel using the same method. The probability density calculating portion 914 which follows is also basically the same as the probability density calculating portion 632 shown in Fig. 7, and determines the probability density functions f_0, $f_{\varphi I}$, $f_{\varphi Q}$ and f_π using the above-given Equations 36 and 37.--

A8

IN THE CLAIMS:

Kindly amend the claims as follows:

Kindly replace claims 10, 13, 20 and 24, as follows.

10. (Amended) An interference canceller unit in a subtractive interference canceller for digital radio communications wherein the communication channel is composed of pilot bits, other control bits and data bits; comprising

adding means for receiving and adding an interference cancellation residual signal and a replica signal from a previous stage;

despreading means for despreading the aforementioned addition signal by multiplying a spreading code of the user;

A9 cont